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Golf Coaches' Mindsets About Recreational Golfers: Gendered Golf Experiences Start on the Practice Tee

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Gender gaps in golf participation persist. Women make up less than 20% of golf's population in the United Kingdom and United States. Their underrepresentation detrimentally impacts the golf industry, society, and women who are excluded from golf's well-documented benefits. This article connects theoretical constructs from motivational psychology with issues of gender discrimination in golf. In this article we examine the relationship between golf coaches' perceptions of recreational women golfers (their mindsets) and women golfers' coaching experience. Specifically, two studies identified that (a) golf coaches reported more of a growth mindset about men golfers compared to women golfers, (b) that these mindsets were significantly related to the adaptiveness of coaches' feedback, and (c) that growth mindsets about women golfers' ability can potentially be fostered through experimental manipulation. Results are discussed in the relation to their significance for addressing gender gaps in adult recreational golf participation.

Keywords: coaches' mindset, gender, recreational sports participation

Donald Trump told *USA Today* (DiMeglio, 2015), "I've done deals on the golf course that I would have never made at a lunch or a series of lunches." The relationship between golf, power, and business is recognized so broadly that it is becoming customary practice for business schools to offer golf classes in the curriculum alongside accounting, entrepreneurship, and marketing (Michigan State University, 2015; Purdue University, 2016). It is unsurprising, therefore, that while only 7.8% of the American general population plays golf (National Golf Foundation, 2017), an estimated 90% of American Fortune 500 CEO's do (Pro-

fessional Golfers' Association of America, 2014).

Unfortunately, golf has a persistently large gender differential in relation to its participation rates that minimizes women's access to golf-associated power networks (Reis & Correia, 2013). In golf's core markets, women make up only 15–20% of the golfing population (National Golf Foundation, 2014; Sport England, 2014). Arguably, how women fare in golf provides insight into a powerful subculture of influence that has, until recently, been a sphere reserved almost exclusively for men (Stempel, 2006). The underrepresentation of women golfers parallels women's underrepresentation in other male-dominated industries, professional organizations, and corporate boardrooms (Bronstein & Fitzpatrick, 2015; Hideg & Ferris, 2016; Myers & Fealing, 2012; Tsang, Wijeyesundera, Alter, Zhang, & Ko, 2011). Therefore, given the status and symbolism of playing golf, reducing the underrepresentation of women players serves an economic, social, and political purpose (Pomfret & Wilson, 2011).

In addition to its economic advantages, golf also offers lifelong health and social benefits (Farahmand, Broman, de Faire, Vågerö, & Ahl-

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bom, 2009; Gao, Hui-Chan, & Tsang, 2011; Kyle & Chick, 2004; Murray et al., 2017; Parkkari et al., 2000; Siegenthaler & O'Dell, 2003; Stenner, Mosewich, & Buckley, 2016; Zunzer, von Duvillard, Tschakert, Mangus, & Hofmann, 2013) and has relatively few physical barriers that prevent participation (McGinnis, McQuillan, & Chapple, 2005). Therefore, it is unsurprising that golf is in high latent demand for many women who want to participate in a sport that can advance their careers, promote physical activity, and facilitate social networks (National Golf Foundation, 2014; Sport England, 2014; Syngenta, 2014).

The Gendered Nature of Golf

When women take up golf, 54% of recreational players (who play for enjoyment, not competition) give up the game within five years (Beditz, 2006). This high attrition rate suggests that the golf experience reduces women's motivation to play. A male-dominated culture (Morgan & Martin, 2006) is also reflected in the contemporary golf experience (McGinnis, Gentry, & McQuillan, 2008; Shapcott, 2011). Although clubs with overtly discriminating playing policies are now a small minority, the game's history manifests itself in the contemporary golf experience for women (BBC Sport, 2014, 2014a, 2016, 2016a; Hundley, 2004; Nickerson, 1987). For example, the golf culture is full of negative stereotypes about women (McGinnis et al., 2008), and women are frequently targets of jokes and discriminatory treatment at golf facilities (McGinnis et al., 2005). The cumulative effect of golf's history, policies and experiences diminishes women's sense of belonging in golf, and subsequently their retention in relation to participation (see Good, Rattan, & Dweck, 2012).

How the Golf Industry Is Addressing Women's Low Participation

Many factors may contribute to recreational women golfers' low participation rates (see Jowett & Felton, 2013). Therefore, there is no panacea to resolve the underrepresentation of women in golf. However, one strategy identified by the golf industry to increase women's golf participation is through instructional pro-

grams (International Golf Federation, 2013, 2017; North, 2007; Pennington, 2011). The success of this strategy, however, depends on the effectiveness of the golf coaches delivering such programs to women. One concern is the coaching culture. Golf coaches in the United States and United Kingdom are over 95% men (N. Henderson, personal communication, October 7, 2014; Z. Kendall, personal communication, January 8, 2015; see Walker & Bopp, 2010; Wallace & Kay, 2012) and embedded in a culture rife with negative stereotypes about women golfers (McGinnis et al., 2008; Reis & Correia, 2013). The present study critically examines this coaching workforce by exploring coaches' theories of others' golf ability (their mindset about others' ability) and how they manifest in coaching practice.

Mindsets

In this study we use Dweck's mindset theory to frame the experiences of women in golf. In 1988, Dweck and Leggett published a seminal paper that continues to guide researchers investigating how mindsets about intelligence, or ability, influence behavior and motivation. In early studies, Dweck and Leggett (1988) found that children endorsing a fixed mindset toward intelligence—those who perceived intelligence as a fixed, innate trait, demonstrated maladaptive learning behavior (Dweck, 2007; Li & Xiang, 2007).

In contrast, children with a growth mindset—who perceived intelligence as a malleable commodity—were more likely to engage in adaptive learning behavior. For these children, their level of intelligence was dependent on what they did to increase it. Endorsing a growth mindset, regardless of domain, appears to be beneficial to one's motivation, learning strategies, and performance (Heslin & Vandewalle, 2011; Hui, Bond, & Molden, 2012; Job, Walton, Bernecker, & Dweck, 2015; Knee, Patrick, & Lonsbary, 2003; Limpo & Alves, 2014; Miller et al., 2012; Nicholls, 1984; Novell, Machleit, & Sojka, 2016; Schroder, Dawood, Yalch, Donnellan, & Moser, 2015).

Mindsets About Sports Ability

In a sports environment, athletes with a fixed mindset believe that athletic ability is some-

thing one has or does not have. It cannot be acquired. Conversely, athletes with a growth mindset believe that athletic ability is something learned with practice, guidance and effort. As with academic mindsets, athletes with a growth mindset engage in more adaptive learning strategies than athletes with a fixed mindset (Chen et al., 2008; Khalkhali, 2012; Ommundsen, 2001; Stenling, Hassmén, & Holmström, 2014; Wang, Liu, Lochbaum, & Stevenson, 2009; Warburton & Spray, 2013).

Coaches' Mindsets About Others' Ability

The extension of Dweck's mindset theory to beliefs about others' ability is a framework that we use to examine coaches' perception of women golfers. In addition to holding a mindset about one's *own* ability, a self-theory, individuals can also hold a mindset about *others'* ability. In the case of golf, mindsets about others are beliefs about whether their golfing ability can change (see Yeager et al., 2014).

Coaches with a growth mindset about others believe that players' golfing ability is something that can be developed and improved. In contrast, coaches with a fixed mindset about others believe that players' golfing ability is innate, static, and unable to change. Importantly when considering the role coaches play in women golfers' motivation, coaches' mindsets about players' ability is likely to be associated with the adaptiveness of their coaching—including the amount and type of feedback they give (see Heslin et al., 2008; Rattan, Good, & Dweck, 2012).

Mindsets About Others' Ability and Coaching Culture

When considering the low participation of women in golf, it is necessary to examine the environment during instructional classes (Satina, Solmon, Cothran, Loftus, & Stockin-Davidson, 1998). Most importantly for this study, coaches' mindset about others' golf ability is likely to influence the coaching culture they create. It is plausible that players can "detect" coaches' mindset about their ability (Rattan et al., 2012; Reich & Arkin, 2006). As Reich and Arkin (2006) have demonstrated, athletes perceive the coaches' mindset about their ability, and this perception relates to their attribu-

tions for their athletic performance (Reich & Arkin, 2006). It is reasonable to assume that women golfers can also detect coaches' mindset about their golfing ability. Previous research with recreational golfers has shown that men and women players make different attributions for their performance (Shapcott, 2010). If, as expected, golf coaches hold more of a growth mindset about men's, compared to women's golfing ability, this disparity may explain the less controllable attributions made by recreational women golfers (Shapcott, 2010). Because attributions are intrinsically linked to motivation (Coffee & Rees, 2009; Shields, Brawley, & Lindover, 2006; Schunk, 1983; Stoeber & Becker, 2008), this insight is critical for coaches who aim to increase the motivation of recreational golfers to play.

Coaches' Mindsets and Feedback

It is expected that coaches' mindsets about others' ability will predict their feedback during golf lessons (Lee, 1996; Maitland, 2001). Feedback from coaches with a growth mindset is expected to be more adaptive. For example, growth-minded coaches may motivate players by explaining how they can improve. In contrast, when coaches' growth-mindset weakens, their feedback is likely to be comforting but not conducive to learning or motivation (see Heslin, Vandewalle, & Latham, 2006; Lee, 1996; Rattan et al., 2012). Coaches' feedback can have the power to influence recreational golfers' motivation to persist with the game (Le Foll, Rascle, & Higgins, 2006, 2008).

Studies and Hypotheses

In this article we report on two studies that sought to examine (a) whether golf coaches' mindsets about men and women golfers' ability were different, and whether these differences correlated with the type of feedback coaches offered men versus women golfers, and (b) whether golf coaches' mindsets about men's and women's ability were malleable and open to change. We hypothesized that golf coaches would hold more of a growth mindset about men's golf ability compared to women's golf ability. As golf coaches are exposed to cultural biases and negative stereotypes about women players (McGinnis et al., 2008; Reis & Correia,

2013), it was expected that this immersion would manifest itself in how coaches perceived men and women golfers' ability. We were also interested in whether the coaches' gender affected how he or she perceived the ability of women golfers. We hypothesized that women coaches would hold more of a growth mindset about their ability than men coaches.

We also hypothesized that coaches' mindset about recreational golfers' ability would correlate with and predict the type of feedback they would reportedly give when teaching. Similar findings have been made in educational (Lee, 1996; Maitland, 2001) and business settings (Heslin et al., 2006), and we saw no reason why golf should be an exception to this trend. Specifically, as coaches became more growth-minded about others' golf ability, we hypothesized that their feedback would be more adaptive (controllable), and less maladaptive (comforting).

Considering the expected cultural effects on golf coaches' mindsets about men's and women's golf ability, we saw value in testing the potential malleability of coaches' mindsets. We hypothesized that growth mindsets about women's golf ability could be fostered through an intervention similar to other successful methods employed in mindset research (Heslin et al., 2006; Steele & Aronson, 1995; Thompson & Musket, 2005). By experimentally manipulating mindsets about women golfers' ability coaches' feedback would continue to correlate with the feedback they reportedly gave to golfers during lessons.

Study 1

Method

In study one we sought to examine golf coaches' mindsets about men and women's golf ability. We also explored the relationship between coaches' mindsets about recreational golfers and the feedback they would reportedly give during instruction. The goal of study one was essentially to investigate if coaches had a gender bias in their mindset about golfers' ability and how that bias may relate to their instructional feedback.

Participants

One-hundred and ninety-seven golf coaches were recruited (Men = 103, Women = 94),

from professional golf networks in the United Kingdom and the United States. An oversampling of women coaches was achieved by distributing the survey link to members of the Ladies' Professional Golfers' Association. Participants' ages ranged from 21 to 71 years old and they had coached golf from 1 to 51 years. All participants identified as golf coaches and 88% were members of a professional golf coaching association.

Procedure

University ethical approval was granted before data collection and the approved protocol was followed throughout the study. Coaches were initially contacted through golf professional e-mail and distribution lists, and communication included a link via which participants could take part in the survey. Data were anonymous and participant recruitment was not limited in number during the recruitment period.

Participants first completed a self-report measure designed to assess their mindsets about men and women golfers' ability. Subsequently, they watched a video of either a man or woman golfer "swinging" and hitting a ball (the order in which men or women golfers appeared was counterbalanced). Trackman (2013) data was displayed so that coaches could see the players' ball flight characteristics. An expert golf coach verified that the men and women golfers were matched for age, golf skill level, swing characteristics and ball flight characteristics. Participants were then asked to think about the golfer in the video and complete a feedback measure.

Measures

Mindsets. Mindset about athletic ability is frequently measured with the CNAAQ and CNAAQ-2 scales (Biddle, Wang, Chatzisarantis, & Spray, 2003; Sarrazin et al., 1996). However, as Warburton and Spray (2017) have observed, the measurement instrument used for athletic ability is an outlier in theories of ability research. The CNAAQ scales are based on Dweck's conceptual framework of growth and fixed mindsets (Warburton & Spray, 2017). The CNAAQ scale was developed due to the weak correlation between the fixed items of Dweck's scale and a goal orientation variable. Therefore, the CNAAQ scales were developed as alternative measures to Dweck's traditional scale due

to perceived invalidity of the items measuring fixed mindsets (Li & Xiang, 2007). Despite the improvements and prolific use of the CNAAQ scales in athletic research, the validity of the fixed mindset factor within the scale remains problematic (Warburton & Spray, 2017). Therefore, this study was conducted with adapted items from Dweck's Theories of Ability Scale (Dweck, 1999). The problematic fixed-mindset subscale in an athletic context could be addressed by using only the growth-minded items. The secondary argument for using Dweck's scale to measure mindset about others' golf ability is theoretical. Dweck's research focuses on the perception of a characteristic; be it intelligence, or athletic ability. The growth-minded items of Dweck's scale will measure such perceptions. This measurement decision is supported by Li and Xiang (2007) who recommended that whichever scale is used to measure mindset, a scale's validity and reliability can be increased by measuring ability of a specific sport, in this case golf, rather than general athletic ability.

The mindset scale consisted of four growth-minded items that suggested golf ability can improve (e.g., 'No matter how much golf ability women have, they can always change it quite a bit'). Participants responded to each of the items on a 6-point Likert-type scale (1 = *strongly disagree*, 6 = *strongly agree*). A high score represented a stronger growth mindset and a mean score was calculated for coaches' mindset about both men's and women's golf ability. Reliability for coaches' mindset about male golfers' ability was $\alpha = .86$, and $\alpha = .74$ for female golfers' ability.

Feedback. Coaches' feedback to golfers was measured with an adapted version of Rattan et al.'s (2012) feedback scale in ways that were appropriate for giving golf, rather than academic feedback. The feedback scale consisted of adaptive and maladaptive feedback items and coaches indicated their level of endorsement with items on a six-point Likert-type scale (1 = *strongly disagree*, 6 = *strongly agree*). Adaptive items indicated that golfers had control over their improvement, and maladaptive items focused on comforting, not empowering players to improve their game. Respective controllable and comforting items included, "Inform her that she can improve her golf game with the right plan," and "Not to worry, not everyone can be

good at golf." A mean was calculated for each of the respective feedback subscales. The Cronbach's alpha (1951) for the comforting feedback scale was $\alpha = .71$ and $\alpha = .62$ for female and male golfers respectively. For the controllable feedback scale, reliability was $\alpha = .78$ for female golfers and $\alpha = .66$ for male golfers. Participants also reported their age, years of coaching experience and gender.

Results

A dependent sample t test found that golf coaches held a significantly stronger growth mindset about men golfers' ability than women golfers' ability, $t(196) = 2.13, p = .03, d = .11$. Nonsignificant mean differences by golfers' gender were found for controllable feedback, $t(196) = .11, p = .91, d = .00$ and comforting feedback, $t(196) = -.24, p = .81, d = .02$. See Table 1 for descriptive statistics.

To test the interactions between coaches' mindset and feedback, we conducted a 2×2 repeated measure ANOVA for both comforting and controllable feedback measures. Coaches' mindset about men and women golfers' ability was one repeated measure variable, and feedback to men and women golfers was the other. We found a nonsignificant interaction between coaches' mindset and comforting feedback, $F(1, 196) = 2.45, p = .12, \eta^2 = .01$, and a nonsignificant interaction between coaches' mindset and controllable feedback, $F(1, 196) = 2.22, p = .14, \eta^2 = .01$.

A bivariate Pearson correlation analysis identified significant correlations between coaches' growth mindset about men and women's golf ability and the type of feedback they would reportedly give during instruction. As coaches' growth mindsets about women's golf ability

Table 1
Study 1: Means and Standard Deviations of
Dependent Variables

Measure	<i>M</i>	<i>SD</i>
Mindset (M)	5.04	.90
Mindset (W)	4.94	.93
Controllable (M)	5.60	.71
Controllable (W)	5.59	.71
Comforting (M)	1.41	.57
Comforting (W)	1.42	.69

Note. *N* = 197.

increased, the controllable feedback measure also increased, $r = .18$, $p < .01$ and the comforting feedback decreased, $r = -.22$, $p < .01$. A similar pattern was seen when considering men golfers. As coaches' growth mindset about men golfers' ability increased, the controllable feedback measure increased, $r = .26$, $p < .01$ and the comforting feedback measure decreased, $r = -.27$, $p < .01$. See Table 2 for correlations between study variables.

Regression analyses were conducted to test if variables, other than mindset, predicted coaches' feedback. In all analyses, the dependent variable was coaches' feedback. The independent variables entered in the regression were coaches' mindset, coaches' years of teaching, and coaches' gender.

In the analysis for controllable-type feedback to women golfers, the regression model predicted 3% of variance $F(3, 193) = 3.26$, $p = .02$, $R^2 = .05$, Adjusted $R^2 = .03$. Only coaches' mindset was a significant predictor of controllable feedback ($\beta = .18$, $p < .01$, $R^2 = .03$, Adjusted $R^2 = .03$). For comforting feedback to women golfers, the regression model explained 4% of variance $F(3, 193) = 3.43$, $p = .02$, $R^2 = .07$, Adjusted $R^2 = .04$. Coaches' mindset was again the only significant predictor of comforting feedback to women golfers ($\beta = -.22$, $p < .01$, $R^2 = .05$, Adjusted $R^2 = .04$).

For controllable feedback to men golfers, the regression model variables explained 7% of variance $F(3, 193) = 5.70$, $p < .01$, $R^2 = .08$, Adjusted $R^2 = .07$. Coaches' mindset ($\beta = .26$, $p < .01$, $R^2 = .06$, Adjusted $R^2 = .06$) was the only significant predictor. For comforting feedback to men golfers, the regression model indi-

cated that the predicting variables explained 11% of variance $F(3, 193) = 8.90$, $p < .01$, $R^2 = .12$, Adjusted $R^2 = .11$. Significant predicting variables were coaches' mindset ($\beta = -.26$, $p < .01$, $R^2 = .07$, Adjusted $R^2 = .07$), years of coaching experience ($\beta = -.16$, $p = .04$, $R^2 = .10$, Adjusted $R^2 = .09$), and coaches' gender ($\beta = -.15$, $p < .03$, $R^2 = .12$, Adjusted $R^2 = .10$).

A one-way ANOVA examined how coaches' gender influenced their perceptions of women golfers. We found nonsignificant mean differences by coaches' gender for mindset about women golfers' ability, $F(1, 195) = 0.18$, $p = .90$, $\eta^2 = .00$, controllable feedback to women golfers, $F(1, 195) = 0.00$, $p = .96$, $\eta^2 = .00$, and comforting feedback, $F(1, 195) = .32$, $p = .57$, $\eta^2 < .01$. See Table 3 for descriptive statistics.

Lastly, we conducted a two-by-two mixed ANOVA for coaches' mindset and both comforting and controllable feedback measures. Coaches' gender was the between-subjects variable, and golfers' gender was used as the within-subjects variable. Mindset and feedback-type were the dependent variables. We found a nonsignificant interaction between coaches' gender and the mindset measure for men and women golfers, $F(1, 195) = .09$, $p = .76$, $\eta^2 = .00$. Similarly, there was a nonsignificant interaction between coaches' gender and comforting feedback for men and women golfers, $F(1, 195) = 2.23$, $p = .14$, $\eta^2 = .01$, and there was a nonsignificant interaction between coaches' gender and controllable feedback for men and women golfers, $F(1, 195) = 1.96$, $p = .16$, $\eta^2 = .01$.

Table 2
Study One: Bivariate Correlation Analysis of Variables

Measure	1	2	3	4	5	6	7	8
1. Mindset (M)	—							
2. Mindset (F)	.75**	—						
3. Control (M)	.26**	.23**	—					
4. Control (W)	.18*	.18*	.55**	—				
5. Comfort (M)	-.27**	-.18*	-.30**	-.27**	—			
6. Comfort (W)	-.05	-.22**	-.01	-.47**	.51**	—		
7. Yrs. coaching	.05	-.12	.01	.10	-.18*	-.02	—	
8. Coach gender	-.03	.11	.11	.00	-.17*	-.04	.16*	—

Note. $N = 197$.

* indicates significant difference $p < .05$. ** indicates significant difference $p < .01$.

Table 3
Study 1: Means and Standard Deviations for Mindset About Women Golfers' Ability and Feedback by Coaches' Gender

Measure	Male coaches		Female coaches	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mindset (W)	4.94	.93	4.93	.94
Controllable (W)	5.60	.66	5.60	.75
Comforting (W)	1.45	.63	1.39	.75

Note. *N* = 197.

Discussion

Study 1 identified a gender difference in coaches' mindsets about players' golf ability that has not yet been reported in other sports domains. However, these findings do align with other researchers who have reported that when intelligence is considered a male trait, girls' intelligence is perceived as less malleable than boys' intelligence (Verniers & Martinot, 2015). This suggests that golf coaches' gender bias reflects cultural stereotypes in the environment (See Plaks, Stroessner, Dweck, & Sherman, 2001; Verniers & Martinot, 2015). Still, coaches' personal beliefs about women golfers' ability and cultural stereotypes might only align with each other with conscious awareness (Devine & Elliot, 1995) suggesting that coaches are in some way motivated to perpetuate a gender bias in golf (See Neel, Kenrick, White, & Neuberg, 2016).

Coaches' mindset about players' golf ability is important because it predicts behavior (see Heslin et al., 2006; Lee, 1996; Maitland, 2001; Rattan et al., 2012). A strength of study one was that the relationship identified between coaches' mindset about players' golf ability and their feedback replicates findings in other domains (Rattan et al., 2012). This suggests that mindsets of coaches or teachers may be critical factors for influencing students' self-efficacy, attributions, performance, and motivation (Chase, 2010; Le Foll et al., 2008).

Considering the influence of coaching feedback on player motivation (García et al., 2019), and persistence (Moles, Auerbach, & Petrie, 2017), study one questioned if other coach-related variables, other than mindset, predicted feedback. For both men and women golfers,

mindset was a significant predictor of both controllable and comforting feedback. Mindset was the only significant predictor of both types of feedback to women players. Although coaches' mindset was the only significant predictor of controllable feedback to men golfers, other variables—years of coaching experience and gender—also explained a significant amount of variance of comforting feedback to men players. Arguably, this suggests that mindset is less critical for adaptive feedback to men golfers as it is to women golfers.

An oversampling of women golf coaches in study one allowed for an examination of women coaches' mindsets about golf ability. Coaches' gender was not a main effect for their mindset, or the type of feedback coaches give to men and women golfers.

Study 2

Method

Study 1 indicated that coaches' have a gender bias in their mindsets about others' golf ability, and that coaches' mindsets predicted the type of feedback they gave during instruction. Accordingly, the aim of study two was to apply a quasi-experimental approach to manipulating coaches' mindsets about women golfers' ability. Furthermore, in addition to testing the malleability of coaches' mindsets about women golfers' ability, study two had two other aims: First, after manipulating coaches' mindsets about women golfers' ability did the correlation with feedback to women golfers remain. Second, even if coaches' mindset about women golfers' ability could be manipulated in the short-term, we sought to understand the longer-term effects of a simple intervention.

Participants. Participants in study two were recruited from professional golfers' networks over a month-long period. Study 2 participants had not participated in study one and all were over 18 years old. The study consisted of two stages. One-hundred and 25 coaches participated in stage one (Men = 85, Women = 39, unknown = 1). Their ages ranged from 20 to 70 years old (*M* = 45.22, *SD* = 12.94) and they had coached golf from between 1 to 52 years. Fifty-six percent of participants belonged to a professional golfers' association. Seventy-four coaches participated in stage two of the

study (Men = 53, Women = 21). Their ages ranged from 20 to 70 years old ($M = 46.76$, $SD = 13.59$) and 58% belonged to a professional golfers' association.

An a priori power analysis indicated that we needed 45 subjects in each condition to have 80% power for detecting a medium sized effect for a .05 criterion of statistical significance (Erdfelder, Faul, & Buchner, 1996). This analysis suggests that although the sample size for stage one of study two was enough, the attrition of participants meant stage two was slightly underpowered.

Measures. As in Study 1, an adapted version of Dweck's Theories of Others' Ability Scale (Dweck, 1999) was used to measure coaches' mindset about women golfers' ability. Cronbach's coefficient alpha (Cronbach, 1951) for stage one data was $\alpha = .86$, and for stage two it was $\alpha = .90$. Coaches' feedback to golfers was again measured with an adapted version of Rattan et al.'s feedback scale (2012). The 'Controllable' items reported $\alpha = .71$, and 'Comforting' items reported $\alpha = .61$.

Procedure. University ethical approval was again granted before collecting data, and the approved protocol was followed throughout. All communication with participants was conducted electronically. Qualtrics software (Qualtrics, 2009) was used to distribute the survey link to golf coaches and assign participants randomly to either a control condition or a mindset manipulation condition.

Coaches in the control condition read a generic passage about ball flight analysis. For example, "The ball flight of all players, regardless of their ability level, can be analyzed with impact factors. In Wiren's coaching model (Wiren, 1990), there are five impact factors. If coaches understand impact factors, they can analyze all players' ball flights." Coaches then read three misconceptions in analyzing ball flight such as, "To make the ball go up, you need to hit down." The material used in the control condition was consistent with industry training material (Professional Golfers' Association of GB&I, 2013). The technical information was followed by a case study of a teaching professional's understanding of ball flight analysis.

Coaches in the mindset manipulation condition read a passage about how golf ability can improve. For example, "Even golfers who eventually become great, do not start that way. Ben

Hogan was famously called 'graceless' and 'uncoordinated' as a child. Yet with a strong work ethic and an understanding of his golf swing, his golf ability improved, and he became one of golf's greatest champions." This text was followed by three misconceptions about golf ability. One example used was, "Some people just aren't cut out for golf." The case study in this condition featured a nongendered golfer who discussed improvement made over a year.

After reading the respective texts, all coaches viewed a photograph of the recreational woman golfer used in study one's video and were asked to imagine she was their student. They then completed the feedback scale and the mindset about women golfers' ability measure. After completing the surveys, coaches were asked to volunteer for stage two of the study.

Stage two participants were contacted 14 days after they completed stage one. In the second stage, coaches completed Dweck's (1999) adapted scale to measure their mindset about women golfers' ability. A chi-square goodness-of-fit test was conducted to evaluate if coaches assigned to the manipulation condition in stage one were more likely to participate in stage two than coaches assigned to the control condition. The likelihood of participating in the second stage of the study was not significantly associated with the condition assignment in stage one, $\chi^2 = 2.36$, $p = .13$.

Manipulation check. After reading the respective texts in stage one of study two, coaches were asked to write a sentence describing an overview of the information. Three participants assigned to the golf ability condition were eliminated from the analysis.

Results. The results of the 2×2 mixed ANOVA showed that there was a significant main effect by condition $F(1, 72) = 5.56$, $p = .02$, $\eta^2 = .07$ on coaches' mindset about women golfers' ability. Coaches in the mindset manipulation condition reported a significantly more growth mindset about women golfers' ability than coaches in the control condition. There was no significant main effect by time on coaches' mindset about women golfers' ability, $F(1, 72) = 2.29$, $p = .13$, $\eta^2 < .03$. See Table 4 for descriptive statistics. This suggests that coaches reported statistically similar mindsets about women golfers' ability immediately following the intervention as 14-days after the intervention. In addition, there was no significant inter-

Table 4
Study 2: Descriptive Statistics of Mindsets About Women Golfers' Ability by Condition and Time

Condition	Time 1			Time 2		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Control	57	5.12	.67	39	5.05	.67
Manipulation	66	5.37	.66	35	5.34	.73

action found between time and condition $F(1, 72) = .12, p = .73, \eta^2 = .00$. See Table 4 for descriptive statistics of coaches' mindset about women golfers' ability.

A one-way ANOVA to test mean differences in feedback given to women golfers by condition found a significant difference between condition for controllable feedback, $F(1, 122) = 7.90, p < .01, \eta^2 = .06$, but not for comforting feedback, $F(1, 122) = .82, p = .36, \eta^2 = .00$. See Table 5 for descriptive statistics.

At stage one, a partial correlation analysis tested the relationship between coaches' mindset about women golfers' ability and feedback. We controlled for years' coaching experience and coaches' gender. As coaches' mindset about women golf ability increased, controllable feedback increased, $r = .43, p < .01$ and comforting feedback decreased ($r = -.19, p = .04$).

Discussion

Study two demonstrated that through online training methods, coaches' mindset about women golfers' ability can be manipulated. In this quasi-experimental study, coaches randomly assigned to a mindset condition reported significantly more growth mindsets about women golfers' ability than coaches assigned to the control condition. Furthermore, the effects endured after a 2-week period. In addition, study two further establishes the relationship

between coaches' mindset about golfers' ability and their feedback.

General Discussion

If golf participation is to achieve parity through instructional initiatives, the golf industry may benefit from addressing coaches' biases in relation to men and women golfers' ability. The gender differences in mindset reported by coaches may be influenced by stereotypes and cultural biases that are inherent in the golf industry (see Verniers & Martinot, 2015). As Todd, Simpson, Thiem, and Neel (2016) suggest, automatic general stereotyping occurs when 'traits' are associated with stereotypes—and as seen in this study, they may influence performance expectations. Gender stereotyping and biases demonstrated by golf coaches may also be described as a social motive (Neel et al., 2016) that coaches employ to conform to the male-dominated structure of golf.

Although we provide theoretical explanations of coaches' biased mindsets, further exploration is required. However, it is likely the bias has effects on women's golf experience. As in other domains, it is plausible golfers can detect whether coaches perceive their ability as something that can be developed or not (Rattan et al., 2012; Reich & Arkin, 2006).

This study contributes two important findings to the field of mindset research. First, we reinforce research by Rattan et al. (2012) who suggest that a gender-neutral intervention can manipulate coaches' mindsets about a specific group. We suggest that interventions designed to promote growth mindsets about specific people do not need to focus on the ability of a stereotyped group. Instead, a general growth mindset intervention may effectively reduce bias. Second, this study replicates research establishing a relationship between mindsets of others and feedback (Rattan et al., 2012). In addition, it presents a different ap-

Table 5
Study 2: Descriptive Statistics of Mean Scores for Coaches' Feedback by Condition

Condition	Controllable feedback			Comforting feedback		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Control	57	4.83	.51	57	2.08	.69
Manipulation	66	5.08	.50	66	1.97	.64

proach to data analysis by using within-subjects repeated measures ANOVA's to capture interactions between coaches' mindset about men and women golfers, and respective feedback.

It should be noted that although study two suggests that coaches' mindset about women golfers' ability can be manipulated, it is unrealistic to expect that a single, brief intervention could have an enduring effect much beyond the immediate time-frame. As described in other studies, ". . . the highest point of effectiveness of training is usually achieved immediately after the intervention; much like the half-life of medicine that has immediate effect, then a tapering, longer-lasting but less valued impact" (Rands, 2007, p. 40). Similar diminishing effects have been reported in mindset interventions (Orosz, Péter-Szarka, B'othé, Töth-Király, & Berger, 2017), including Brainology (Mindset Works Inc., 2008).

One surprising finding in this study is that coaches' gender did not affect their mindsets about women golfers. This finding is of relevance to the golf industry who recommend, as part of a larger strategy to increase women's participation, an increase in the number of women coaches (Professional Golfers' Association of America, 2019). Although this is, no doubt, a positive initiative (see Mutter & Pawlowski, 2014), our findings suggest that all coaches—men and women—could benefit from training that cultivates a growth mindset about the players they teach.

In a broader sense, this study also connects to recent calls to explore the utility of motivational theory in relation to social justice (see Carr, 2015). The study highlighted how theories, such as growth mindset, can be used as a language through which discriminatory gender practices might be understood and expressed in psychological terms. Critical psychologists (see Carr, 2015) have begun to explore the ways in which ideas from motivational theory might help us to understand how certain groups of people can be motivationally oppressed by disproportionately internalizing certain disadvantageous motivational characteristics. Furthermore, it may be that the social and contextual environment plays a role in constructing these motivational disadvantages. In this article, the possibility exists that golf coaching practices may be discriminatory in a motivational sense. However, it remains to be seen whether this would directly translate into women golfers' mo-

tivational characteristics. Further research is needed to explore this possibility.

Limitations should also be noted when interpreting our results. For example, although coaches' mindsets related to their feedback, a gender difference was not seen in the feedback measure. Furthermore, we have assumed that coaches' mindsets about women golfers' ability and their feedback will influence women players' long-term motivation to play golf (Le Foll et al., 2008). To validate this, it would be useful to analyze golf coaches' feedback when instructing women golfers, and to track the longer-term motivation of the women golfers they teach (see Heslin et al., 2006). In addition, this study focuses specifically on how golf coaches perceive adult recreational women golfers' ability and the findings cannot be extrapolated to elite women, or girl golfers' ability.

Future research should examine how golf coaches' mindsets about golfers' ability impact golfers' sense of belonging. As seen in other domains (Good et al., 2012; Schmidt, Shumow, & Kackar-Cam, 2017), when the culture is perceived as growth-minded, women have an increased sense of belonging and retention in that activity. Should this relationship be established in golf, developing coaches' growth mindsets about others' ability may be a critical key for increasing women golfer participation and their access to golf's powerful benefits.

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